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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/640,521	08/17/2000	Kenji Kasahara	0756-2197	6284

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EXAMINER

EVANS, GEOFFREY S

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 11/28/2001

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/640,521

Applicant(s)

KASAHARA ET AL.

Examiner

Geoffrey S Evans

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3 and 12-20 is/are allowed.
- 6) ☒ Claim(s) 4-11 and 21-29 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. Claim 4 is rejected under 35 U.S.C. 102(b) as being anticipated by Baumgart et al. in U.S. Patent No. 5,910,262. Baumgart et al. discloses a laser source (10), a variable attenuator (18) that inherently filters to control the energy density of the laser beam, and an optical system to deliver two beams to opposite sides of the workpiece.

3. Claim 4 is rejected under 35 U.S.C. 102(e) as being anticipated by Xuan in U.S. Patent No. 5,952,058. Xuan in figure 2 discloses an attenuator (element 240), a laser source (element 200), and an optical system for guiding laser beams to the bottom and top surfaces of an object.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osborne in U.S. Patent No. 4,069,080 in view of Maisenbacher et al. in U.S. Patent No. 4,925,273. Osborne discloses a laser source (element 1), an optical system (see figure 2) for splitting the beam and delivering the beams to opposite sides of an object to be treated, and using optics to reshape the beams into linear cross sections for bonding thermoplastic sheets together. Osborne does not disclose using a filter for attenuating one or all of the beams. Official notice is taken that using a variable attenuator to control the power level of a laser beam is well known in the laser heating art. Maisenbacher et al. teaches using a filter for attenuating a laser beam. It would have been obvious to adapt Osborne in view of Maisenbacher et al. to provide a filter for attenuating a laser beam, the motivation being to control the power level of the laser beam and thereby the bonding of the thermoplastic sheets.

7. Claims 6,7, 8,9,10,11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi in U.S. Patent No. 5,767,003 in view of Adachi et al. et al. in U.S. Patent

No. 6,171,890. Noguchi meets all of the limitations of claims 6,8,9, and 11 except Noguchi uses a xenon lamp instead of a laser to emit light to the back surface of the object. Adachi et al. teach in column 2, lines 35-40 the interchangeability of using an excimer laser and a xenon lamp for photoannealing as each works equally well. It would have been obvious to adapt Noguchi in view of Adachi et al. to provide light from an excimer laser to anneal the bottom surface of the object as a matter of design choice as an equally effective way to anneal the substrate. Regarding claims 7 and 10, Noguchi teaches in column 4, lines 17-21 using a beam shaper to shape the laser beam into a linear shape and maintain uniformity of the laser beam over its cross-section. (Please note that the equations or ratios of " $0 < I_0' / I_0 < 1$ or $1 < I_0' / I_0$ " in combination cover all intensities except the two intensities of I_0' and I_0 being equal.)

8. Claims 21-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi in U.S. Patent No. 5,767,003 in view of Adachi et al. et al. in U.S. Patent No. 6,171,890, Yamazaki et al. in U.S. Patent No. 5,854,803 and alternatively Shepard et al. in U.S. Patent No. 4,020,319, Baumgart et al. in U.S. Patent No. 5,910,262 or Osborne in U.S. Patent No. 4,069,080. Noguchi performs photoannealing with a light from an excimer laser on a top surface of an object and light from a xenon lamp on a bottom surface of the object, with greater light intensity on the top surface from the laser than light on the bottom surface. Adachi et al. teach in column 2, lines 35-40 the interchangeability of using an excimer laser and a xenon lamp for photoannealing as each works equally well. It would have been obvious to adapt Noguchi in view of Adachi et al. to provide light from a second excimer laser to anneal the bottom surface

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of the object as a matter of design choice as an equally effective way to anneal the substrate. Shepard et al. in U.S. Patent No. 4,020,319, Baumgart et al. in U.S. Patent No. 5,910,262 and Osborne in U.S. Patent No. 4,069,080 teach that it is well known in the laser arts to use a beam splitter to create two laser beams from a single laser beam source and to use the laser beams on opposite sides of an object. Yamazaki et al. in U.S. Patent No. 5,854,803 teaches using a light attenuation filter in a laser annealing system. It would have been obvious to adapt Noguchi in view of Adachi and alternatively Shepard et al. in U.S. Patent No. 4,020,319, Baumgart et al. in U.S. Patent No. 5,910,262 or Osborne in U.S. Patent No. 4,069,080 to use a beam splitter in order to eliminate the costs associated with a second excimer laser, and to further adapt in view of the teachings of Yamazaki et al. in U.S. Patent No. 5,854,803 of a light attenuation filter after the beam splitter in the laser light reaching the bottom surface to ensure that light on the top surface has greater intensity than the light reaching the bottom surface.

9. Claims 1-3, 12-20 are allowed.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Auston et al. uses different wavelengths of light on opposite sides of the workpiece. Lee in U.S. Patent No. 5,612,251 teaches using a laser to preheat the bottom surface, followed by a laser beam from a different type of laser to photoanneal the top surface of an object.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey S Evans whose telephone number is (703)-

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308-1653. The examiner can normally be reached on Mon-Fri 6:30AM to 4:00 PM, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (703)-308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are (703)-305-7718 for regular communications and (703)-305-5585 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0661.



Geoffrey S Evans
Primary Examiner
Art Unit 1725

GSE
November 14, 2001